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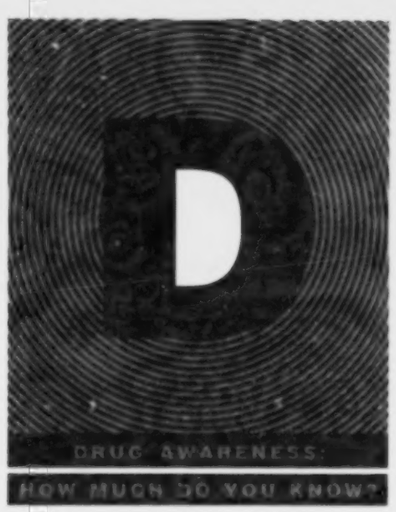


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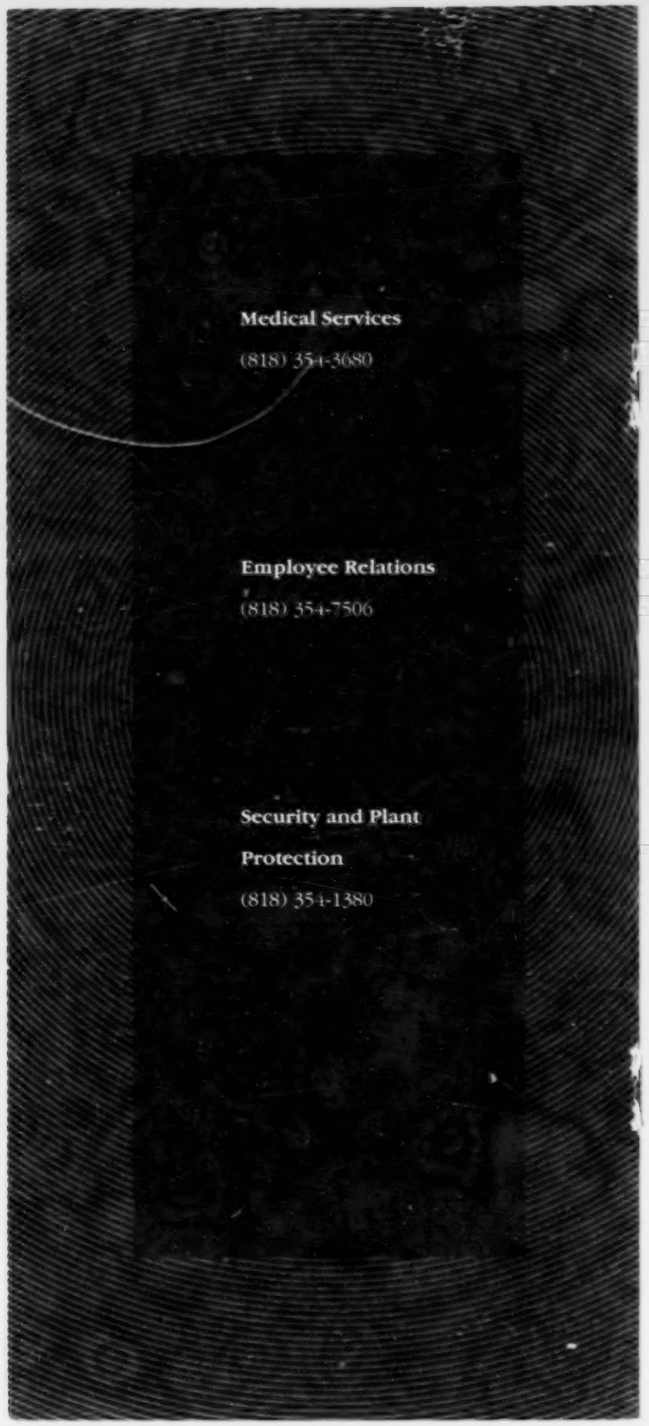


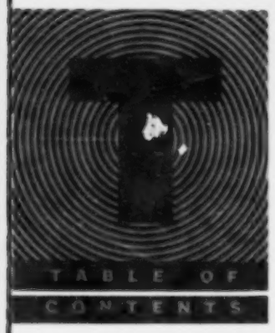

*During the past year, the Laboratory has conducted Drug Awareness presentations for managers, supervisors, and employees. This Drug Awareness handbook provides a comprehensive overview of substance abuse, which is a serious national problem.*

*Over 23 million Americans are addicted to drugs, and drugs are finding their way into the workplace at an alarming rate. This handbook does not attempt to make you, the reader, an expert on drugs, but will heighten your awareness of drug usage in society and the workplace. It also covers the available treatment resources.*

*JPL's Drug-Free Workplace policy was issued to all personnel on March 17, 1989. A copy of the policy may be obtained from the Recruitment and Employee Relations Section.*

*It is our hope that this handbook will increase your knowledge and awareness in the vital area of substance abuse.*

*P.T. Lyman*
*Deputy Director*

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## *Drugs: An Overview*

In the past twenty years, there has been an alarming increase in the number of Americans who abuse alcohol and other drugs. In 1988 alone an estimated 23 million Americans were addicted to drugs. Each year thousands die and thousands more are admitted to emergency rooms as a result of substance abuse.

Drug- and alcohol-related accidents and suicides have become the leading cause of death in the 12- to 25-year-old age group.

Substance abuse costs the United States an estimated 60 to 100 billion dollars each year. In addition to the enormous monetary drain, substance abuse causes widespread personal suffering: lost jobs, broken families, and the terrible effects of drug-related crimes.

This handbook provides information about the nature and effects of the various drugs presently subject to abuse and addiction.

Certain principles apply to all drugs including alcohol and tobacco:

- All drugs that have a mind- or mood-altering effect are potentially addicting.

- All drugs are toxic or poisonous when abused. When drugs are taken over a period of weeks or months, the body adjusts to the drug's toxicity, resulting in an increased tolerance to the drug's effect.

- Chemical dependency (addiction to drugs) occurs in stages, often beginning with experimental and social use, leading to abuse, and, finally, to addiction. As the addiction progresses, a user's tolerance to the drug's effect also increases. In all cases, a person's abuse of the substances discussed in this handbook can lead to chemical dependency.



## *Cocaine and Other Stimulants*

**What are stimulants?**

Stimulants are drugs that increase the "action" of the central nervous system, resulting in a feeling of euphoria. The most commonly used stimulants are cocaine and amphetamines.

**What is cocaine?**

Cocaine is a stimulant drug extracted from the South American coca plant. The two most common forms of cocaine are hydrochloride and freebase.

Cocaine hydrochloride is a white crystalline powder that users snort into the nose or inject intravenously. Street cocaine is routinely diluted, or "cut," with a variety of compounds including amphetamine, lidocaine, milk sugar, baby laxative, and numerous other substances, all of which have additional side effects. Cocaine in powder form can be rubbed on the gums; cocaine users refer to this as a "freeze" because of its numbing effects.

The effects of cocaine hydrochloride when snorted take approximately 5 minutes. When cocaine is injected, its effects begin in 8 to 10 seconds and are more intense and dangerous. Injecting cocaine often causes infections and abscesses, and users are at a high risk for contracting AIDS (acquired immunodeficiency syndrome) and hepatitis when needles are shared.

Cocaine freebase, also known as "crack" or "rock" cocaine, consists of small, dull, off-white "pebbles" that are smoked in a special pipe. Like cocaine hydrochloride, freebase is rarely pure and usually contains residues from the processing of kerosene and other chemicals that increase the drug's toxicity. Sometimes freebase "rocks" are added to marijuana cigarettes, which are then called "coco puffs."

Cocaine freebase is smoked and takes approximately 6 to 8 seconds to produce its effects, which are similar to the effects of injecting cocaine and are just as intense and dangerous.

**What are the immediate effects of cocaine?**

Cocaine produces a rapid, dramatic increase in pulse rate and blood pressure. Breathing becomes quicker and sometimes labored. Body temperature rises and appetite decreases. The initial high that cocaine users experience is accompanied by feelings of well-being, euphoria, and alertness. Once this high wears off, users often experience extreme anxiety and agitation.

Cocaine use can result in what is known as "sudden death syndrome," in which the immediate effects of cocaine cause cardiac arrest, a loss of the breathing reflex, stroke, and multiple seizures, resulting in death. Sudden death syndrome occurs even in first-time users and can happen with relatively low doses of cocaine.

**What are the long-term dangers of cocaine?**

Over a period of weeks or months, cocaine can cause extreme irritability, sleep disorders, confusion, hallucinations,



violent behavior, paranoia, and deep depression. It also causes heartbeat irregularities, weight loss, and a reduced ability to fight off disease. Prolonged use of the drug damages nasal membranes if snorted and damages lungs if smoked.

In pregnant women, cocaine can cause spontaneous abortion or severe damage to the fetus. "Cocaine babies" are often underweight, irritable, and sickly, and may be neurologically impaired. Even occasional use of cocaine during pregnancy is dangerous to the developing fetus.

**Can people become dependent on cocaine?**

Yes. Cocaine is the most addicting drug known. Cocaine use can lead to a physical and psychological addiction that can occur within a matter of weeks or months. Of the 24 million Americans who have tried cocaine, approximately 6 million are addicted to the drug.

**What is amphetamine?**

Amphetamine (methamphetamine) is a bitter, off-white powder with a yellowish tinge that, like cocaine, produces stimulation. It comes in pill, capsule, or loose powder form. Amphetamine compounds are called "uppers," "crank," "speed," "meth," "crystal," "bennies," "cross tops," "ice," and numerous other street names. Some amphetamines are prescribed by physicians for specific medical problems: Preludin and Tennuate are sometimes prescribed for the treatment of obesity, and Ritalin is used to control hyperactivity in children with attention-deficit disorders.

Amphetamine and amphetamine-like drugs are taken orally, injected, or snorted. Snorting amphetamines damages nasal membranes, and injecting amphetamines can cause infections, including AIDS, hepatitis, and abscesses.

**What are the immediate effects of amphetamines?**

Amphetamines initially produce a sense of well-being and euphoria, followed by feelings of anxiety, restlessness, and agitation. Heart and breathing rates rapidly increase and blood pressure rises. Death from overdose is possible, particularly when the drug is injected. Amphetamines can cause cardiac arrest and multiple seizures, resulting in sudden death.

**What are the long-term dangers of amphetamines?**

Over a period of weeks or months, amphetamines produce many of the effects seen in cocaine users, including lethargy, deep depression, sleep disorders, anxiety, weight loss, heartbeat irregularities, paranoia, hallucinations, delusions, and sometimes violent behavior. Immune response (ability to fight disease) is reduced. Confusion and disorientation are common. Other long-term effects include skin disorders, malnutrition, and both liver and kidney damage.

**Can people become dependent on amphetamines?**

Yes. Amphetamines are both physically and psychologically addicting. Like cocaine, amphetamines alter brain chemistry and function; chronic use also creates a physical and psychological need for the drug. Both cocaine and amphetamine addicts experience a profound sense of deprivation and agitation when their drug use is interrupted.



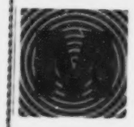
**Are over-the-counter stimulants dangerous?**

Yes. Many people develop a pattern of abuse with stimulant drugs that are sold legally over the counter (OTC) in diet preparations, decongestants, or "energy boosters." These OTC drugs contain varying amounts and combinations of ephedrine, phenylpropanolamine, and caffeine. If abused, these drugs can cause heartbeat irregularities, stroke, anxiety, sleeplessness, and agitation.

Other stimulant drugs include "look-alikes." Look-alike drugs are pills or capsules manufactured to resemble prescription or OTC stimulants; these drugs have been banned in most states. Look-alike drugs contain varying combinations of ephedrine, phenylpropanolamine, and caffeine and can cause the same side effects as OTC drugs.

**Is caffeine a stimulant drug?**

Yes. Although weaker and less toxic than either cocaine or amphetamines, caffeine is, nevertheless, a stimulant found in coffee, tea, some soft drinks, and some pharmaceutical preparations. Caffeine in large quantities (between 4 and 6 cups of coffee per day) can produce many of the same side effects of other stimulants: restlessness, irritability, sleeplessness, tremors, and nausea. Caffeine can also increase blood sugar, blood pressure, and urine production.



## *Marijuana/Hashish*

**What is marijuana?**

Marijuana (grass, pot, weed) is a common name for a drug made from the dried leaves of the *Cannabis sativa* plant. Marijuana's main psychoactive (mind-altering) ingredient is THC, or delta nine tetrahydrocannabinol. The plant also contains over 400 other chemical compounds.

**What is THC?**

THC is a fat-soluble chemical that "hides" in fatty tissues including neurons (brain nerve cells). THC accumulates in brain cells and impairs the neural impulses. The marijuana cultivated in the 1980s has been selectively crossbred to produce concentrations of THC that are 10 times more potent than the marijuana cultivated in the 1960s. This high-content THC marijuana also increases the health risks to marijuana smokers.

**What are hashish and hash oil?**

Hashish and hash oil are a concentrated resin made by pressing the flowers of the *Cannabis sativa* plant into blocks, slabs, or liquid form, which is then smoked. Hashish can be 5 to 10 times more potent than marijuana; hash oil, because of its concentrated form, is even more potent.

**What are the physical effects of smoking marijuana, hashish, or hash oil?**

Marijuana, hashish, and hash oil increase heart rate, dilate pupils, produce bloodshot eyes, increase appetite, slow reflexes, distort perception of time and space, produce dry mouth, irritate throat and



lungs, and, in some cases, cause disorientation and hallucinations. In all cases, coordination and motor skills are impaired, making driving or operating machinery hazardous. Some studies show that marijuana can affect a person's ability to drive or operate machinery for up to 24 hours, far longer than the actual high.

In some people, marijuana causes a panic reaction or toxic psychosis,* both of which can lead to paranoia.

**What are the long-term effects of smoking marijuana, hashish, or hash oil?**

Over weeks or months of use, these drugs can impair short-term memory, lower the body's immune response system, alter hormone levels that affect fertility, and aggravate heart and kidney conditions. Prolonged use of marijuana, hashish, and hash oil often results in what is known as "amotivational syndrome," a loss of interest in daily activities. Habitual use of these drugs also diminishes learning and coping abilities, making school work or job tasks increasingly difficult to perform.

Like tobacco, marijuana can cause cancer. Because of the number of tars and chemicals in marijuana and the fact that it is inhaled deeply into the lungs, many marijuana smokers suffer from chronic bronchitis and other respiratory illnesses.

* Toxic psychosis is a fundamental break with reality caused by certain drugs. Toxic psychosis is hard to distinguish from a classic case of schizophrenia, and, in some instances, the symptoms can persist for weeks or even months. Toxic psychosis always requires immediate medical care since people suffering from this condition are likely to harm themselves or others.

Marijuana can also affect the developing fetus. Fetal marijuana syndrome has been identified in some babies born to mothers who smoked the drug during pregnancy. These babies are born with a variety of physical problems, ranging from low birth weight to neurological impairments.

**Is marijuana addicting?**

Yes. For years it was believed that marijuana was merely psychologically habituating rather than physically addicting because withdrawal from marijuana is relatively mild compared to withdrawal from heroin or alcohol. Researchers and clinicians, however, have identified a marijuana withdrawal syndrome that includes increased irritability, sleep disorders, headaches, and disorientation. Addiction to marijuana also produces feelings of deprivation and physical craving when drug use is interrupted.

**Isn't marijuana relatively safe?**

No. Marijuana, particularly the high-content THC hybrids, is a very dangerous substance that affects nearly every aspect of the body and mind. Marijuana is perhaps the most underrated drug in terms of its toxic effects. One reason marijuana is so dangerous is that users (particularly teenagers) are so casual about its use. However, studies show that marijuana is an addictive and harmful drug.



## *Sedatives/Hypnotics*

**What are sedatives/hypnotics?**

Sedatives/hypnotics are drugs that depress the central nervous system. Most sedatives/hypnotics are legally manufactured and prescribed by physicians for short-term treatment of anxiety disorders, insomnia, and certain injuries.

The class of sedatives/hypnotics most often prescribed is benzodiazapines, which includes Valium, Librium, Xanax, Halcion, Dalmane, Clonopin, and numerous other drugs. Barbiturate compounds such as Seconal and hypnotic compounds such as Doriden, Placidyl, Miltown, or chloral hydrate are less often prescribed due to the high incidence of overdose with these drugs.

Sedatives/hypnotics usually come in pill form and are taken orally, although some are injected intravenously. Intravenous use of these drugs dramatically increases the risk of death from overdose, abscesses, infections, and, when needles are shared, the risk of contracting and spreading hepatitis and AIDS.

**What are the immediate effects of sedatives/hypnotics?**

As their names imply, sedatives/hypnotics induce sedation and alter perceptions; coordination becomes impaired, and speech is slurred. These drugs affect people in much the same way as alcohol, impairing judgment and weakening inhibitions.

Ingestion of large quantities of sedatives/hypnotics alone or in small quantities in combination with alcohol can result in unconsciousness, coma, respiratory failure, and death. Accidental overdose from sedatives/hypnotics is common. Because these drugs are so addictive, many people build up a tolerance to these drugs and over time they must increase the dosage to gain the same effects. Too often people increase their dosages without medical supervision, which can result in overdose.

**Can sedatives/hypnotics affect the fetus?**

Yes. These drugs pass through the mother's bloodstream to the developing fetus and can cause birth defects and neurological damage that result in learning disabilities or behavioral problems. Mothers who are addicted to these drugs will give birth to babies who are also addicted and who suffer severe and often life-threatening withdrawal upon delivery.

**Are sedatives/hypnotics physically addicting?**

Yes. These drugs are extremely addicting and when taken over a period of weeks or months result in physical dependency, malnutrition, and reduced immunity to disease. Withdrawal from sedatives/hypnotics is often severe, causing extreme restlessness, insomnia, confusion, muscle spasms, headaches and even multiple seizures that can occur when these drugs are abruptly discontinued. Withdrawal from these drugs can be life-threatening and is more dangerous than withdrawal from heroin; people addicted to sedatives/hypnotics need to withdraw under medical supervision.

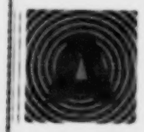


**If these drugs are so dangerous and addicting, why do physicians prescribe them?**

Most sedatives/hypnotics are relatively safe when appropriately prescribed for short-term treatment of certain medical or psychiatric conditions. It is important to understand the difference between the necessary use of medicine and the abuse of drugs. Always question your physician about the dangers and side effects of any medicine prescribed, and whenever possible seek out alternative treatments that do not require drugs.

**Can other drugs cause sedation?**

Yes. Besides the opiate drugs discussed later, there are many drugs sold over the counter that induce sedation. Cold, cough, and allergy preparations that contain antihistamines and/or alcohol are particularly likely to cause sedation and other side effects. Although all OTC drugs have warning labels, they should be taken only after consulting with your pharmacist or physician.



## *Alcohol*

**What is alcohol?**

Alcohol is a depressant (sedative) that if discovered today would certainly require a prescription, if it were legal at all. Alcohol is made by the fermentation of yeast and cereals, producing beer, or yeast and grapes, producing wine. Alcohol can also be distilled into "hard" liquor products such as vodka, bourbon, gin, tequila, and many more. Incidentally, hard liquor is not necessarily more potent than either beer or wine. The alcohol content in a 1-ounce shot of whiskey is equivalent to a 12-ounce can of beer or a 4-ounce glass of wine.

For thousands of years alcohol has been used to celebrate or socialize; perhaps this is why alcohol remains a socially acceptable drug. However, at least 12 million Americans suffer from alcoholism (addiction to the drug alcohol), making alcohol America's major drug of abuse.

**What are the immediate effects of alcohol?**

Alcohol is commonly used to induce a relaxed, slightly euphoric feeling. Alcohol depresses the central nervous system, often causing slurred speech, staggered gait, slowed reflexes, loss of coordination, nausea, flushing of the skin, bloodshot eyes, unconsciousness, coma, and even death. Alcohol also impairs judgment and reduces inhibitions.

**What are the long-term effects of alcohol abuse?**

Alcohol when abused is a poisonous or toxic substance. Excessive drinking damages the liver, resulting in cirrhosis; chronic alcohol abuse also causes ulcers, pancreatitis, kidney disease, memory loss, tremors, malnutrition, vitamin deficiencies, and even seizures.

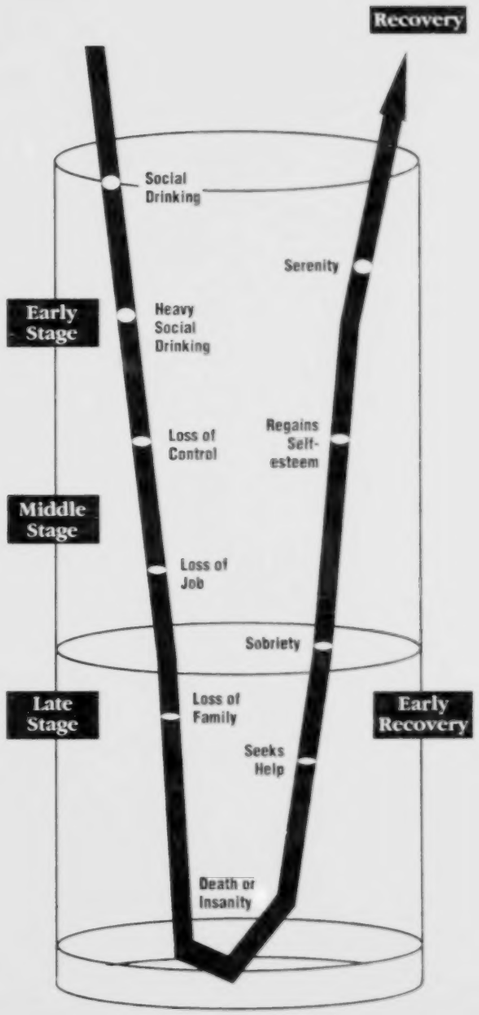
**Can alcohol affect the fetus?**

Yes. Women who drink alcohol during pregnancy run the risk of giving birth to babies with fetal alcohol syndrome. Fetal alcohol syndrome results in mild to severe birth defects, learning disabilities, and low birth weight. Pregnant women and women considering pregnancy should abstain from all alcohol. Even small amounts of alcohol consumed during pregnancy, especially in the first months following conception, can damage the developing fetus.

**Is alcohol addicting?**

Yes. Alcoholism is a physical and psychological addiction to the drug alcohol. It is a progressive condition that can affect all aspects of a person's life—relationships, work performance, and physical and emotional health (see Disease of Alcoholism chart). Withdrawal from alcohol can be severe and often requires medical supervision. Withdrawal symptoms can include tremors, restlessness, insomnia, anxiety, headaches, sweating, nausea, and seizures. In some cases, withdrawal from alcohol can be life-threatening.

## *Stages of the Disease of Alcoholism*






**What is the safe limit of drinks when driving?**

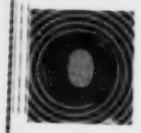
Zero. Any amount of alcohol is likely to affect driving abilities. Alcohol slows reflexes, which reduces reaction time and the ability to cope with sudden situations. Unfortunately, many people think that if they are below the legal drunk driving limit, they are capable of driving safely. Actually, just one or two drinks in some people can markedly affect their ability to drive or operate machinery.

Alcohol-related accidents are a major cause of death in the United States. Every year thousands die and hundreds of thousands are seriously injured because of drunk drivers.

The best rule is do not drive when you have had any amount of alcohol. If the driver has been drinking, do not ride with him or her. Always insist on having a nondrinker assume the driving chores or take a cab.

**Won't black coffee sober up a drinker?**

No. The use of caffeine or other stimulants does not counteract the effects of alcohol. An intoxicated person's judgment and coordination are still impaired, and she or he should not drive. Only time will eventually sober up an intoxicated person.



## *Opiates*

### What are opiates?

Most opiates are derived from the opium poppy. Opiate derivatives have been used for centuries, and opium smoking has been a common practice in some cultures for thousands of years. More than a century ago, opiate derivatives such as laudanum were introduced into America and were widely used as pain killers. Opiates such as morphine, heroin, Diludid, and codeine were introduced within the last hundred years, and synthetic opiates** such as Demerol and Talwin have only been in use since the 1950s.

Opiates are white or brown alkaloid substances that are usually taken orally in pill form, injected intravenously, or smoked. They reduce pain and induce sleep. Because of their effects, they are classified as narcotics. Opiates are also used medically as an analgesia during surgery and for terminal conditions such as cancer. Opiate derivatives include morphine, heroin, Diludid, and codeine; synthetic opiates include methadone, Demerol, Talwin, and Darvon.

### Aren't most opiate addicts dependent on heroin?

No. Although previous national estimates indicated that up to 90 percent of opiate addicts used heroin, current statistics show that roughly half of the opiate addicts in the United States use prescription opiates. Presently there are approximately 3 to 4 million Americans addicted to heroin, an illegal drug that is almost always injected intravenously. The balance of opiate addicts abuse drugs manufactured for medical use. Many opiate addicts began using these drugs for medical reasons, initially taking them under the supervision of a physician, for the relief of pain from chronic headaches, backaches, arthritis, or abdominal cramps. Health professionals, in particular, are at high risk for opiate addiction because they often have easy access to these drugs.

** In this handbook, opiates are defined as both derivative opiates (drugs derived from the opium poppy) and synthetic opiates (drugs manufactured as synthetic compounds having similar narcotic effects as derivative opiates).



### What are the effects of opiates?

Opiates initially induce a relaxed, sedated feeling, accompanied sometimes by euphoria. Opiates relieve pain but often cause nausea and constipation. Like sedatives/hypnotics, opiates distort judgment and impair coordination. Large dosages of these drugs can cause respiratory collapse that results in death.

If opiates are taken regularly, tolerance for these drugs will increase, and users are then forced to take more and more of the drug to gain the same effects. Habitual users routinely take dosages of the drug that would be lethal for a first-time user.

People who inject opiates have a very high risk of overdosing. Heroin users, in particular, are at risk because they never know the exact strength of the dose they are using since drug dealers "cut," or dilute, the drug with varying amounts of milk sugar, quinine, other sedative drugs, or whatever is handy.

**What are the long-term effects of opiate use?**

People who use opiates over a period of months or years suffer from a variety of medical problems, including respiratory illness such as pneumonia, heart disease, malnutrition, and anemia. Intravenous users also risk contracting chronic infections of the heart muscle, abscesses, infections, hepatitis, and AIDS.

**Can you get AIDS from injecting opiates?**

Yes. Any time drug users share needles, whether they are injecting heroin, cocaine, or amphetamines, they are passing blood and, in some cases, infectious diseases from one user directly into the bloodstream of another. The AIDS virus is transmitted in this manner. Hepatitis, syphilis, and other infectious diseases are also transmitted through needle sharing. In New York City, an estimated 65 percent of that city's 200,000 intravenous drug users already carry the AIDS virus. Other metropolitan areas like Baltimore, Miami, San Francisco, Los Angeles, Detroit, Philadelphia, and Chicago are also experiencing a shocking increase in the number of AIDS cases related to intravenous drug use. Today, the majority of new AIDS cases are a result of needle sharing by drug users.

**Do opiates affect the fetus?**

Yes. Opiates are passed from the mother through the placenta to the developing fetus. During pregnancy, these drugs increase the risk of birth defects, spontaneous abortion, and stillbirths. Mothers who are addicted to opiates will give birth to addicted babies. In most states, the birth of an addicted baby, whether the addiction is to opiates, cocaine, or other drugs, is



considered child abuse. Any baby born with an addiction is now routinely reported to child protective services and the mother may lose custody of the baby.

**Do opiates produce dependency?**

Yes. Drugs like heroin, morphine, Diludid, codeine, Demerol, methadone, Talwin, and Percodan are highly addicting. Chronic use of these drugs over a period of weeks produces a strong physical dependency. Withdrawal from these drugs causes sleeplessness, muscle spasms, vomiting, restlessness, anxiety, diarrhea, runny nose, stomach cramps, and backaches. Whenever opiates are prescribed, regular consultation with your physician or pharmacist is advised, and whenever possible, seek out alternative pain treatments that do not require drugs.

**What treatment is available for opiate addiction?**

Withdrawal from opiates is often severe and can be life-threatening. In some cases, drugs are used to subdue the painful effects of opiate withdrawal. The following drugs are used to treat opiate addictions.

- Narcotic antagonists are non-mind-altering drugs, such as naltrexone, that block the effects of opiates. These drugs are especially useful in the treatment of opiate overdose and may be helpful in the long-term treatment of opiate dependency.

- Alpha agonists are drugs that stimulate physiologic activity and are extremely useful in the treatment of opiate withdrawal. Drugs such as clonidine alleviate some of the withdrawal symptoms, allowing the person to withdraw in relative comfort without the need for further narcotic drugs.

■ Methadone is a synthetic narcotic drug that alleviates opiate withdrawal and has been found to be an effective treatment for heroin addiction. Methadone treatment was first pioneered in New York City as a way to gradually withdraw heroin addicts. In cases of long-term addiction in which the user is unable to quit the drug, methadone is used as a way of maintaining a user's addiction; it is legal and safer than the drugs (usually heroin) that the addict was previously using.

## *LSD and Other Hallucinogens*

**What are hallucinogens?**

Hallucinogens are a class of drugs that radically alters a person's perception of reality. Hallucinogens distort thinking, heighten the senses, and intensify emotions and self-awareness.

The most common hallucinogen currently used is LSD, or lysergic acid diethylamide, which is derived from ergot, a mold that grows on rye bread. (During the middle ages, eating moldy rye bread caused widespread outbreaks of bizarre behavior.) The street name for LSD is "acid," and its use is often termed "blazing." LSD is a colorless, odorless, and tasteless drug taken in doses measured in micro or millionths of a gram, making it one of the most potent mind-altering chemicals known. LSD is sometimes dropped on small squares of absorbent paper (blotter acid) and taken orally in this form.

Other hallucinogenic drugs commonly used include psilocybin (LSD 23), found in certain mushrooms (shrooms), and mescaline, derived from the peyote cactus. Both are usually taken orally. Synthetic hallucinogenic drugs include DMT, STP, and DET.



**What are the effects of hallucinogens?**

Hallucinogenic drugs cause visual, olfactory, and auditory hallucinations that are accompanied by distortions of space and time and a diminishing sense of self. Thinking becomes confused, and some people experience strange delusions, including paranoia. Others experience acute panic reactions (called bad trips), which are extremely frightening. Hallucinogenic drugs can cause toxic psychosis, or a fundamental break from reality. Continued use of these drugs can result in emotional instability, a marked change in personality, and sometimes permanent psychic damage.

Hallucinogenic drugs severely impair perception and judgment, making driving or operating any type of machinery particularly hazardous. They also cause flashbacks.

**What is a "flashback"?**

A flashback is a recurrence of the hallucinogenic experience and symptoms in the absence of the drug. Flashbacks are more likely to occur when a person smokes marijuana or is under stress, but they can happen for seemingly no reason weeks, months, and sometimes years after the hallucinogen was taken.

**What are the physical effects of hallucinogenic drugs?**

From fifteen minutes to one hour after taking a hallucinogenic drug, a number of physical symptoms are likely to occur, including dilated pupils, increased body temperature, flushing of the skin, increased heart rate and blood pressure, decreased appetite, sleeplessness, tremors, and dry mouth.

**Why would someone take such a frightening drug?**

Once the dangers of hallucinogenic drugs became widely publicized in the late 1960s, the use of these drugs dramatically declined. Unfortunately, the lessons of the sixties seem to have been forgotten, and in the United States there has been a resurgence of hallucinogenic drug use.

Hallucinogens seem to be particularly attractive to teenagers who are curious and believe they are invulnerable to the drug's side effects.

**Can hallucinogenic drugs cause dependency?**

Maybe. Studies have shown that one of the measures of addiction (an increased tolerance to the drug's effect) is present in habitual users of hallucinogens. However, no withdrawal or abstinence syndrome has been reported.

## *PCP*

**What is PCP?**

PCP, an abbreviation for phencyclidine, is a drug that was originally developed as an anesthesia for surgery but was discontinued because of its dangerous side effects. It is a difficult drug to classify because it produces a wide range of effects.

PCP usually comes in a liquid form. Cigarettes, especially the brands Sherman and Kools, are dipped in PCP liquid and when dry are smoked. Marijuana is sometimes laced with PCP to increase its potency. PCP also comes in a white powdery form that is snorted or, in extreme cases, injected. Although most



often called "angel dust," PCP is also known as "Sherm," "juice," and "supercools."

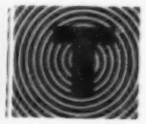
**What are the effects of PCP?**

When it is smoked, PCP affects the user within seconds, causing hallucinations, distorted perceptions, increased body temperature, confusion, numbness, and muscle contractions. Large doses of PCP can cause severe depression of the respiratory system, resulting in coma or death. It constricts muscles and reduces pain. People under the influence of PCP may become aggressive and are able to exert extraordinary strength.

Long-term use of PCP can result in neurological damage, memory loss, decreased intelligence, and motor impairment.

**Do people still use PCP?**

Unfortunately they do. PCP is relatively inexpensive and easily available. Within certain metropolitan areas and among drug abusers of certain ethnic groups, PCP has retained a degree of popularity.



## *Tobacco*

**How is tobacco used?**

Most tobacco users smoke cigarettes, pipes, or cigars. Smokeless tobacco products such as chewing tobacco and snuff are also widely used.

**What is in tobacco?**

The addictive drug present in tobacco is the alkaloid nicotine. Hundreds of other chemicals including many tars are also present. When tobacco is smoked, thousands of additional chemicals are released, including highly toxic carbon monoxide.

**What are the immediate effects of smoking?**

Nicotine acts as a type of sedative inhibiting neural impulses in the region of the brain known as the beta adrenergic system. Chemicals in tobacco smoke constrict blood vessels and irritate throat and lungs.

**What are the long-term effects of tobacco?**

The Surgeon General of the United States, based upon a complete review of all the scientific studies, has announced that smoking contributes to mouth, throat, and lung cancer and aggravates both lung and heart disease. Smoking also increases the possibility of stroke.

**Is smoking harmful to the fetus?**

Yes. Studies have proven that babies born to mothers who smoked during pregnancy are underweight, have a reduced immune response, and are at greater risk for



contracting disease. Babies may also experience withdrawal symptoms if the mother smoked regularly during pregnancy.

**Is smoking addicting?**

Yes. Nicotine is an addictive drug that the brain adjusts to over time. When chronic smokers quit, their brains respond to the lack of the drug with a burst of electrical activity that causes anxiety, agitation, sleeplessness, confusion, and craving. A treatment regime of behavioral therapy, Nicorette gum, and occasionally a drug like clonidine can minimize withdrawal symptoms.

**What about passive smoke?**

A great deal of controversy has arisen over the effects of tobacco smoke on nonsmokers exposed to it in the workplace, in the home, or in any enclosed public area. The fact is, passive tobacco smoke can be dangerous to others. People with respiratory disorders or allergies are particularly at high risk. In addition to the health risks of passive smoke, many find tobacco smoke offensive.

**If smoking is so dangerous, why is it legal?**

The increasing awareness of tobacco's harmful effects has resulted in the passage of state and federal laws banning smoking in most public areas including theaters, restaurants, and airplanes. Increasingly, smoking is being banned in the workplace in an effort to protect employee health. Advertising of tobacco products is now restricted, and warning labels are required on all tobacco products.

## *Inhalants*

**What are inhalants?**

Inhalants are manufactured substances that produce vapors. When these vapors are inhaled, they induce intoxication. The major legally produced and illicitly used inhalants are nitrous oxide (laughing gas), amyl nitrate, and butyl nitrate (deodorizers). Other inhalants that are often abused include gasoline, paint, organic solvents like carbon tetrachloride, aerosols, glue, lighter fluid, correction fluid, hair spray, cocktail icer, Freon, cookware coating agents like Pam, and nail polish remover.

Inhalants can cause nausea, coughing, lack of coordination, and loss of appetite. Excessive or prolonged use can result in violent behavior, unconsciousness, or death.

## *Drug Addiction*

**What is an addictive disease?**

Chemical dependency (addiction to drugs) is a progressive condition that unless treated can result in death. Chemical dependency is physically and psychologically debilitating. Because drug dependency reduces a person's power of choice over his or her behavior, it is recognized as a disease.

People suffering from drug addiction are often unaware of just how addicted they are to drugs. They frequently rationalize their behavior and justify their continued use of drugs. Sadly, friends, family, and coworkers often accept the drug abuser's rationalizations. They often try to "help" the addict by making excuses or covering up his or her mistakes. This behavior,



called "enabling," is well-intentioned, but it only aggravates the condition, often preventing the drug abuser from seeking help.

Those who suffer from an addictive disease require a professional evaluation and a structured, competent treatment program. Family, friends, and coworkers can help save a drug abuser's life by firmly insisting that he or she receive professional help. Because addicted people often deny their disease or rationalize their behavior, it is usually necessary to seek assistance through an "intervention" process.

**How do I recognize whether a friend, coworker, or family member has a problem with drugs or alcohol?**

As the addictive disease progresses, a corresponding increase in the severity of symptoms can be noticed. Some of the warning signs of a drug and alcohol problem are

- Change in personality, specifically radical mood changes
- Missing work or school
- Financial difficulties
- Increased family conflict
- Health problems and accidents
- Increased isolation or seeking out "drug using" companions
- Lower grades or erratic job performance
- Increased anxiety or depression
- Loss of interest in usual activities
- Drunk driving or other types of arrests

**What type of treatment is available?**

There are thousands of treatment centers across the country that specialize in the care of chemically dependent persons and their families, ranging from hospitals and residential treatment centers to outpatient programs. Almost all professional treatment programs are staffed by medical personnel, trained alcohol and drug counselors (many of whom are recovering addicts themselves), and licensed therapists. Most treatment centers focus on assisting the entire family, and many support "12 Step" programs such as Alcoholics Anonymous, Alanon, Cocaine Anonymous, and many others.

**How do I find a good treatment program?**

Many companies have an Employee Assistance Program (EAP). EAPs help employees identify appropriate treatment resources. Your local telephone directory will list numerous hotlines that may be helpful. Your physician, clergy, or therapist can also be of assistance.

**JPL Employee Assistance Program**

The JPL Employee Assistance Program provides professional and confidential help to employees whose job performance is affected by alcoholism, drug abuse, marital and family problems, and nervous and emotional problems (such as coping with stress or handling grief).

National statistics show that 40 to 60 percent of job performance problems are drug- or alcohol-related. Absenteeism, disability, and poor judgment hurt the employee and Laboratory alike. The



worst thing one can do for a chemically dependent person is to tolerate, cover up, or rationalize his or her behavior. Employers, in particular, are in a position to help a chemically dependent person and are best suited to help with rehabilitation. JPL management strongly supports EAPs.

Employees with questions can call the Employee Assistance Program (4-3680) for an appointment.

**JPL Employee Relations**

Laboratory management encourages employees to use the services of Employee Relations to resolve work-related problems. Employee Relations works with management to prevent or resolve drug-related concerns in their early stages. This office will make appropriate referrals or recommendations; sensitivity of the subject matter is respected in discussions with either the employee or the supervisor.

An employee's involvement in an EAP or other rehabilitation program does not excuse or limit the employee's obligation to comply with Lab policies or standards (see Laboratory Policy 2-19). Employees are to remain free of the influence of alcohol and drugs while they are on Lab (see Personnel Instruction 2-03-1). Disciplinary action, up to and including discharge for cause, may be imposed upon employees for violations of Lab policy (see Personnel Instruction 2-03-1).

Specific concerns can be addressed by calling Employee Relations (4-7506) for an appointment.

**JPL Security and Plant Protection**

JPL Security and Plant Protection may be notified in the event of drug or alcohol violations on the job. They will take appropriate action, which may include removing the person from the Lab premises. If drug-related cases require law enforcement, employees can call 4-1380 for on-Lab assistance.

## *Treatment*

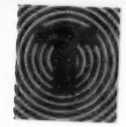
**Does treatment work?**

Yes. Although recovery rates vary (ranging from 25 to 80 percent), early intervention may save a drug abuser's life. Without help, it is unlikely that an addicted person will be able to recover.

**What if someone does not want help?**

This is not at all uncommon. Drugs and alcohol impair judgment, so people addicted to drugs often rationalize their behavior and need for drugs, denying their illness. It was once believed that because of denial people had to "hit bottom" (lose family, friends, job, self-respect) before they would seek help. Now through a process of "intervention" in which family, friends, and often employers team up to confront the drug abuser, it is sometimes possible to break through an addict's denial and motivate him or her to seek help.





**How can I be sure whether someone has a problem or not?**

The best way to determine the nature and extent of a person's drug or alcohol problem is to have that person evaluated by an employee assistance counselor or qualified health professional. Even if the addicted person refuses to attend an evaluation, family or friends can speak with a counselor about the problem.

**If the drug abuser I know absolutely refuses help even after intervention, is there anything else I can do?**

Yes. Family members, friends, and coworkers often suffer from the effects of another's chemical dependency. Family strife, financial problems, and even denial of the problem are emotionally debilitating to family and friends. Therapists call this co-dependency and help is available through local "12 Step" programs like Alanon, Families Anonymous, Co-Dependency Anonymous and from professional inpatient and outpatient counseling centers.

**Acknowledgment**

This handbook was developed by the JPL Human Resources Division with the assistance of Jay R. Cavanaugh, President, Interagency Drug Abuse Recovery Programs (I-ADARP).

Source: NASA's *Substance Abuse: Increase Your Knowledge and Awareness*

## *Drug Effects and Health Risks*

| | Alcohol | Amphetamines | Cocaine | Inhalants | LSD |
|---|---|---|---|---|---|
| Withdrawal Symptoms | ■ | ● | ● | U | U |
| Overdose Potential | ● | ▼ | ■ | ■ | U |
| AIDS Risk (Needle Sharing) | U | ■ | ■ | U | U |
| Impaired Driving | ■ | ● | ● | ■ | ■ |
| Toxic Psychosis | ● | ▼ | ▼ | ■ | ■ |
| Respiratory Illness | ● | ● | ● | ▼ | U |
| Effects on Heart | ● | ▼ | ■ | ● | ● |
| Harmful to Fetal Development | ▼ | ▼ | ■ | ▼ | ● |

| | Marijuana | Opiates | PCP | Sedatives/ Hypnotics | Tobacco |
|---|---|---|---|---|---|
| Withdrawal Symptoms | ● | ▼ | U | ■ | ▼ |
| Overdose Potential | M | ■ | ▼ | ■ | U |
| AIDS Risk (Needle Sharing) | U | ■ | ● | ● | U |
| Impaired Driving | ▼ | ■ | ■ | ■ | M |
| Toxic Psychosis | ● | M | ■ | M | U |
| Respiratory Illness | ▼ | ● | ● | ● | ▼ |
| Effects on Heart | ● | ▼ | ● | ▼ | ● |
| Harmful to Fetal Development | ▼ | ▼ | ▼ | ▼ | ● |

■ - Extreme Risk ▼ - High Risk ● - Moderate Risk
M - Minimal Risk U - Undetermined or extremely rare

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